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COOP'S TECHNOLOGY DIGEST

-A Timely Report On The World Of Communications-

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COOP'S TECHNOLOGY DIGEST

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SKY AFFIRMS SATELLITE DECISION

New Zealand Sky Network, one of the world's most financially successful over the air pay television services, plans to begin satellite service to at least New Zealand on 1 April 1997. SKY is to lease transponder space from Australian satellite operator Optus, using the higher frequency Ku-band segment, to deliver an initial duplication of their present five channel service.

The SKY decision followed Board approval in mid-July to switch from its present Telecom microwave plus fibre optic and BCL microwave terrestrial relay links as a means of interconnecting SKY's Auckland headquarters with transmitters serving 20 regions of New Zealand. The SKY contracts with Telecom expire March 31, 1997. Telecom is a significant stockholder in SKY but does not dictate operational policy (1). SKY's management views Telecom as a serious competitor because the telephone company is rolling out a hybrid fibre optic plus cable network to pass a hoped-for 70,000 New Zealand homes by early in 1997. SKY sees the promised 50 channel cable television service from Telecom as a direct threat to their own long term viability; especially in Auckland and Wellington markets where Telecom is starting and where SKY boasts a 30% penetration rate (3 homes in 10 subscribe to Sky).

For SKY to continue to be a customer of Telecom for linking to their transmitter sites is a form of "feeding the enemy" for SKY management. Additionally, while SKY has never revealed the cost of using Telecom networks to reach their mountain top transmitter sites, it now believes it can reach these sites for less cost with equal or better quality by switching their network feed to an Optus Ku band satellite link.

There will be considerable capital costs for SKY to retrofit for this changeover. SKY plans to install a pair of uplink dish antennas 9 metres in size at their 10 Panorama Drive location in Mt. Wellington. That is but the bare beginning. SKY will utilise the newly emerging DVB Compliant MPEG-2 format which will allow as many as 10 separate programme channels to occupy the transponder bandwidth normally consumed by a single analogue TV channel. An uplink equipment supplier has not been announced; the choices at this time are few (2). Initially the satellite link will consist of the "normal" five channels presently available at SKY locations with TAB possibly getting a "ride" via satellite as a part of the SKY "digital programme bundle."

At each of the 20 regional transmission sites SKY will install Ku-band downlink equipment consisting of a satellite dish, MPEG-2 satellite receivers (one for each programme channel plus at least one spare per location) and interfacing hardware to marry the baseband video and audio from each satellite receiver to the appropriate terrestrial transmitter. SKY feels these capital costs, which CTD estimates to be in the region of NZ$4,500.000, will be paid for by the savings between satellite delivery costs and terrestrial network charges they now pay.

1/ Telecom NZ attempted to gain operational control over Sky Networks in 1995, ultimately withdrew its take-over plan after it became apparent opposition to the plan was considerable and likely to result in a protracted court battle (CTD 9603, p. 17).

2/ The most logical supplier of both the uplink digital transmission equipment and the companion MPEG receivers for use at receiving sites is Thomson Electronics. The French firm is scheduled to build MPEG satellite receivers for use in the Pacific region at a new facility under construction in Indonesia before the end of this year.

SKY: The Sky is The Limit

Internally, Sky is hopeful to launch a single channel analogue service in February to coincide with an international Rugby test. By having the test on satellite, even if only for the duration of the test in analogue format, Sky would be seen to be making an effort to mend its public relations fences in rural New Zealand now denied access to the live Rugby coverage. The analogue "test" of the service, using the Rugby test as an excuse, will serve as a warning shot across the bow of competitors Telecom and Saturn both of whom plan to be operational at least in metropolitan Wellington prior to Sky's going to satellite.

Where Sky plans to go, ultimately, with the satellite delivered service remains an evolving business plan. The variables are many and just how far SKY takes itself on satellite will depend to a large measure on the way that competitive forces develop over the coming 36 months.

Option One: **Use satellite as a replacement for terrestrial linking.**

This decision is a matter of dollars and cents. SKY has an annual budget to interconnect its 10 Panorama Drive studios with UHF television transmitter sites spread from Whangarei south to Invercargill. Painfully, most of this budget is spent with a stockholder that has turned into a competitor; Telecom NZ. The remainder is spent with another stockholder which has been a competitor from the beginning; Television New Zealand through its BCL division. SKY contracts with the land based linking services have been irrevocable but now the Telecom portion is up for renegotiation and renewal. This is an appropriate point in time to consider switching from land links to a satellite linking system.

If SKY was only interested in replacing Telecom links with a satellite link, it would have signed a satellite contract with PanAmSat. They talked with PanAmSat and as a source in SKY commented after meeting both Optus and PanAmSat, "*I will tell you that Optus is far more expensive to use than PanAmSat.*" The primary differences between Optus and PanAmSat:

1) Optus costs nearly twice as much for the same transponder space, but ...

2) Optus promises to be 5 to 7 dB "hotter" on the ground than PanAmSat.

By selecting Optus, SKY telegraphs its own long term plans. If SKY were only interested in replacing existing Telecom terrestrial links, the "weaker" signal from PanAmSat would be no problem; you correct for this at the SKY transmitter sites by installing slightly larger receiving antennas. The cost for larger receiving antennas to take the SKY feed through PanAmSat is measured in tens of thousands of dollars, spent one time at the point of installation. The Optus premium, paid monthly over the term of the contract, amounts to millions (and millions) of dollars.

So why would SKY elect to pay more money than required to interconnect 10 Panorama Drive to its scattered New Zealand transmitter sites? Because they have a plan to enlarge their coverage market to include all of New Zealand (even the Chatham Islands but at a signal level requiring 2m+ range Ku dish antennas) and to offer a direct to home service.

In the direct to home (DTH) world, antenna size is a major hurdle. As DTH operators have painfully learned in Europe and North America, small dishes sell better because they install quicker, easier, and for less cost. The most ideal size for a DTH (Ku band service) dish is 50cm. At the point of manufacture this size dish antenna is now down to under US$25. In fact at retail over the counter in Europe, they sell for under US$75. This compares favourably with the cost of the antenna portion of the present SKY UHF television aerials being installed for the terrestrial service.

Had SKY selected PanAmSat as the satellite link provider, the antenna size required would have been in the 1 to 1.6m (100 - 160cm) class to compensate for the weaker signal PanAmSat delivers to New Zealand. The cost would have risen to more than US$175 at the wholesale level and of greater importance, where as 50cm dish can be installed on a short stub of pipe similar to the way a UHF TV aerial is installed, a dish 1.6m in size requires a support structure (mount) which doubles or worse the time and costs associated with the installation. At the same time, a 50cm antenna can be "stuck on" the edge of a house; most 1 - 1.6m antennas would pull the side off of a New Zealand house by their sheer weight and wind loading. And the alternative to sticking it on the side of the house, i.e., going up on top of the roof or onto a ground pole mount, makes the installation even more complicated and costly.

And there is the matter of zoning approval. Christchurch, Wellington, Auckland all have regulations that require antennas larger than some stated size to obtain (1) a variance in the zoning regulations, (2) a construction (building) permit, and, (3) may also require a public hearing and a 90 day "cooling off period" to allow "affected landowners in the region to voice their objections." All of this is avoided if the antenna size is kept below the statutory maximums prescribed by regulations. A 50cm antenna skirts by on the no hassle side of the regulations; a 1m antenna usually will not.

Option two: **Expand the scope of the service.**

No doubt Sky-Satellite will reach some homes who are now shielded by hills and tall buildings from terrestrial service. This is not a significant market, however, and would alone hardly justify the kind of expansion underway at Sky.

In the face of cable competition from Telecom NZ, Saturn and a handful of rural located cable operators, SKY needs a broader choice of programming. No matter how they arrange and rearrange the line-up on 4.5 terrestrial TV channels (sharing the fifth channel with TAB), they simply cannot effectively compete with the sheer volume of a 50 (+) channel cable service. SKY might be able to squeeze out a sixth UHF TV channel in the major markets but at great expense. Alternately, if it could, it would trash the existing analogue 4.5 channel service and overnight switch over to a new digital transmission system. Within its 4.5 channels it has room to deliver into homes as many as 27 "digital programme channels" simply by converting from analogue to digital.

Such a conversion is still not economical; the very first digital tests with systems similar to the SKY system in the USA are barely underway. It will be at least 2000 and probably 2002 before the hardware is routinely available to allow SKY to economically convert to a terrestrial digital system.

Not so with a satellite system. The digital equipment, required at 10 Panorama Drive to send the programme to satellite and required at each receiving location, is hardly yet routine (see CTD 9605, p. 2) but it is coming on line fast enough for SKY to at least plan for an April-June 1997 launch date for their Sky-Satellite service.

SKY is most likely to launch, after their February 1997 analogue "tests," with their present terrestrial 5-channel package in some variant of MPEG-2 format. This would fit the "April-June" time period (1997). This will accomplish two goals:

1) Replace their existing terrestrial linking system, and,

2) Allow their public relations department to pound home the message that SKY is available "throughout New Zealand" to counter the ongoing complaints from rural and small town people who miss their live Rugby and other New Zealand sport coverage.

Several important decisions remain to be made. SKY plans to offer the satellite service to anyone who wishes it, probably at a monthly cost that is identical to the prevailing terrestrial rates at the time of satellite launch. However, it is very unlikely SKY will be offering to subsidise the cost of the satellite receiving equipment as it has done with the terrestrial antenna, installation and decoder box. The terrible mess that Australian Galaxy got itself into by doing just this (**3**) tells us why.

The Australian Galaxy DTH receiving system package has averaged A$1,100 in cost over nearly 150,000 systems installed. It is unlikely that SKY can measurably trim this cost factor. The easiest route around this challenge is to require that satellite subscribers purchase their own equipment. This might apply to every part that goes into the system, or merely the installation labour and the equipment less the so-called "decoder" (which in the satellite world is called an IRD: **I**ntegrated **R**eceiver **D**ecoder). SKY might, no decision yet, agree to provide the decoder either as a matter of policy, or, as an optional part of the monthly charge. In the latter case the subscriber would be given

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3/ Australis originally offered to install a home dish system for as little as A$19.95 installation cost. Against this Australis was spending A$1,100 for each installation if everything worked properly; more if there were problems. An auditor's report issued in mid-July on the status of Australis (Galaxy) operations noted the firm was being cash drained at the rate of A$500,000 each and every business day primarily because of its generosity in subsidising the satellite dish system installations. For an update on the current status of Galaxy, see p. XX here.

two choices: Pay the "decoder" themselves or rent one from SKY for a surcharge on their basic monthly programming charge.

Why would SKY not merely allow the satellite subscriber to purchase the entire "system?" Two good reasons:

1) The A$1,100 for Galaxy is at wholesale cost; all of the equipment going into the installation has been purchased with the maximum possible purchasing power and no profit has been added at the Galaxy level. Moreover, the installation crews hired to make the installs are paid by a formula; a not very generous formula.

Bottom line? There is no fat in this package, even at A$1,100 per system. There certainly is no mark-up. The object has been to get people "on line" as subscribers, paying the monthly subscription fee. To do this, the going in costs have been painfully reduced to an absolute minimum **(4)**.

If SKY insists on providing all of the equipment required (from antenna to "decoder"), and also insists on establishing a "fair market price" for the system at the consumer level, it will be faced with the same dilemma that Galaxy battled. Do they mark-up the package to cover costs of transport and installation? If yes, where does an A$1,100 cost-to-Galaxy package end up being priced in New Zealand at the consumer-subscriber point? Certainly NZ$1,500 is a bare minimum. So - how many New Zealanders living in areas where Sky terrestrial service is not available are going to be willing to spend $1,500 up front for the privilege of following the All Blacks live?

2) Ownership of the "decoder" is another problem. The first decoder SKY elects to utilise may well not be the correct decoder in 2 or 3 years time. At no place within consumer electronics is the technology changing faster than in the "satellite decoder" realm. The current MPEG-2 "DVB Compliant" farce (see CTD 9605, p. 2) is a damning statement about how rapidly this year's technology is superseded. SKY may well find itself in 1999 or 2000 having to do a wholesale replacement of all of the decoders in its satellite service universe. This would happen because as the technology of digital compression matures, it becomes more practical to force more and more separate programme channels onto a single satellite transponder. Unfortunately for the service provider, it can only take advantage of these new developments by periodically throwing out all of its existing decoders and replacing them with newer versions. SKY will face this decision several times in the first ten years it operates the satellite link.

By owning the decoders, SKY is in a position to make such a change without incurring the wrath of the consumer who has recently purchased his own decoder but is now being told they will have to replace it with a newer model (at his or her own expense). Of course if SKY owns the decoders, it is now back in the same position as Galaxy finds itself today; purchasing decoders up front and then waiting over a period of years while the decoder generates revenue to pay itself off.

SKY appears to be still sorting through the equipment decision area. Given the long lead time required to source and have this type of equipment available when needed, decision time is rapidly

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4/ Therein is one of the more tragic Galaxy errors. They assumed, quite incorrectly, that they could take terrestrial TV aerial installers off the street and turn them into satellite system installers with ten hours of training. This turned into a disaster simply because there is almost nothing in common between terrestrial TV antenna installation and digital Ku-band satellite installation. To complicate this significant error, Galaxy experienced a very high rate of "decoder" and associated equipment failure problems which the ten-hour-trained terrestrial TV personnel were totally unable to cope with. Ultimately, rather than finding faults and fixing them the Galaxy installers reverted to wholesale reinstallation techniques, replacing everything that "might be at fault" and in the process spending far too much time taking out equipment that was not broken to begin with. This in turn created a massive retesting requirement to cope with the huge volume of equipment taken out of service by in-a-hurry installers who were being paid a flat fee to get in and get out (and get the customer back in service) in the minimum possible time. At one point Galaxy had a warehouse with 12,000 "decoders" in it which installers had taken out of service because they couldn't figure out what was really the problem. All 12,000 had to be retested and then separated into lots based upon whether they worked or not, and how well they worked. SKY will face the same learning curve when it attempts to turn terrestrial aerial riggers into satellite system installers here.

approaching. They need a solid six months of lead time here and an April start date suggests an October decision.

Is all of this risk worthwhile if SKY is only going to add a couple hundred thousand new potential homes to its service area by going satellite? The answer takes us into the marketing plan behind the SKY decision to go to satellite.

If SKY sat still and held its own against the growing cable competition until 2000-2002, it would be in a position at that time to blow the competition away with a 27 channel digital system using its present terrestrial analogue TV frequencies. However, how do you convert 300,000 homes from terrestrial analogue to terrestrial digital without cutting off service during the conversion stage? You cannot transmit analogue and digital simultaneously so you make a decision: Cut off one analogue channel, convert it to digital and place six programme channels on that new digital service (the maximum under present technology you can compress into the space now occupied by a single analogue programme service). Now you race like hell to replace 300,000 analogue decoders in place with new digital decoders, giving the customers their pre-existing five channels (+ 1). With all of the analogue decoders taken out, and every location now equipped with a new digital decoder, then you shut down the other 4 analogue transmission channels and replace them with new digital transmission equipment. As you turn back on each of the new digital transmitters, your public has access to as many as six new (at that time) programming services. Does this sound like fun?

Of course you are not going to jump from 4.5 programme channels to 27 without some additional revenue coming in. That is, at the end of the day, why you are adding all of those new programme channels; to offer more choice, and in the process to sell your existing customers up on buying new channels and paying you more per month for their new, total, programme package service.

The satellite offers an interim way to get there. In fact, it could work out so well that you may not even have to convert the terrestrial UHF analogue channels at all.

When SKY has their 4.5 channels (**5**) up and running in a digital video format, they plan to expand to a second "tier of five" perhaps as early as midwinter 1997. Just how these five additional channels, available only to satellite subscribers, will be configured is a well kept business secret at the moment (**6**). Within a year from now, it is entirely possible that Sky-Satellite subscribers will have access to twice as many channels as Sky-terrestrial viewers. There are those within SKY who believe this will become a "market test" in its own right since anyone (without regard to where they live, even where terrestrial service is available and of high quality) can if they wish "upgrade" to the satellite package with more channels at any time. How well these additional tiers of programming do will determine for SKY their own future rollout of services either on an expanded satellite service or if it works out that way on a analogue converted to digital terrestrial service within the 2000-2002 time frame.

The big marketing unknown relates to system costs. SKY presently spends nearly $300 per home to equip it for 4.5 channels of analogue pay TV; it will spend (or someone will spend) not less than $1,500 for the early adopters of the satellite service. All of this, of course, is to make it possible for SKY to charge an additional $50+ per month to sell the subscriber the privilege of ongoing programme delivery.

SKY is not alone in this quandary. In Europe, for example, the Murdoch (European) Sky service has building towards an eventual offering of 100 digital programme channels. The system was initially to go into operation in 1997; now it is 1998 and slipping fast. Why? Equipment costs. A British or German home can equip itself to receive the present up-to-24 channel analogue pay TV satellite DTH service for as little as NZ$500. Neither the British nor German programming firms

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5/ It is assumed but not verified that TAB (Horse Racing) will "come along" on the national satellite distribution as well. This could be in error; Sky could also expand the Discovery service to 24 hours per day, on satellite, as well. TAB, if they are going to be a part of this, would be well advised to make that statement sooner than later.

6/ Turner International does agree they plan to be a part of the "second tier" service with some configuration of their present satellite delivered Cartoon + TNT Channel service. Turner is looking at making this a two channel service as early as the first quarter of 1997; one channel Cartoons and children's programming, the second channel 24 hour classic movies.

offer to buy the equipment for the consumer, and at NZ$500 there has not been a reluctance by consumers purchasing the system on their own. The logic is that any home that can afford to add NZ$50 a month to their monthly budget for pay TV service can also find NZ$500 to buy the package of equipment that makes this possible (**7**).

Murdoch's (European) Sky has delayed the introduction of the 100 channel all digital package because today the digital package is too expensive (that same A$1,100 at cost and close to NZ$1,900 at retail figure again). Murdoch's people believe the success of their 100 channel digital programming package will depend crucially upon the cost of the equipment coming down to near the NZ$500 mark that is currently being paid for analogue pay TV satellite systems.

This is already happening in America where the volume of sales has brought individual all digital 175 channel packages down under US$500 for the first time; US$300 is forecast by mid 1997 but only if the programmers agree to subsidise some portion of the equipment cost with programming rebates.

SKY selection of a particular brand and model of consumer receiving equipment becomes critical. The more "mainstream" the equipment, the better the chance the price will drop significantly enough to eliminate the purchase price hurdle for consumers. This is another error Galaxy made; they selected a brand and model of satellite "decoder" which is unique to Australia. This means the only volume that occurs is the volume they create by their own sales. Then Galaxy further compounded the problem by signing a contract (with Pace) in which they agreed they would not allow any other brand nor model of "decoder" to be used with their programming. This basically guaranteed Pace an exclusive market in Australia, which of course provides absolutely no incentive for Pace to bring the costs down (**8**).

The "American model" is precisely the opposite. There are now 12 suppliers of the equipment, and three competing satellite delivery systems. The competition is fierce and prices have tumbled as a result.

If SKY selects an off brand or special model of "decoder" they are basically ensuring that the cost of the consumer package will stay high. This in turn will slow down sales growth by providing a high cost of entry for the consumer. Just as SKY telegraphed its intent by selecting Optus, it will also tell us (and competitors Saturn and Telecom) its marketing plan when it announces a receiver supplier and the specific receiver model.

The Downside of The Decision

A significant portion of the SKY Board is to some extent alienated by the satellite decision. First off, of course, are the Telecom/Bell Atlantic folks who did their best to prevent this scenario. Next are the Television New Zealand people who can now see their own plans to expand into multiple channel digital broadcasting at a pace they would establish undermined by the aggressiveness of SKY. It will be difficult for TVNZ to proclaim their own innovation and leadership over the next half decade with SKY throwing more and more digital programme channels to satellite while at the same time Telecom and Saturn are rolling out hundreds of kilometres of 50 channel + all digital cable TV systems.

7/ If the consumer pays for the full installation there is one benefit often overlooked: A consumer with $19.95 invested in the installation has few qualms about dropping the service when programming interest wanes. On the other hand, having $500-$1,500 invested makes them reconsider "churning" off the subscriber rolls. The American Ku-DTH operators learned this lesson early reducing churn rates from a typical cable universe 34% to under 10%, a factor they believe results from the consumer purchasing their own equipment.

8/ The other side of the "Decoder" selection coin is this: Murdoch wants a totally unique receiver for his Ku-DTH systems (Europe, India, Indonesia, Japan) to ensure that consumers do not have the future option of "switching" from his service package to that of a competitor. A unique receiver, that works only with one programmer package, is useless to a consumer who might consider "switching."

Optus, the decision versus PanAmSat or even Intelsat, is a sticky one. Optus has one of the worst track records in the world for their satellite system's operation. Galaxy may have been flawed from the launch by poor planning and unwise business decisions but Optus - their satellite carrier - didn't help Galaxy's chances for success by adopting the business policies they now use to operate. Optus service is far more erratic than competitors such as PanAmSat, to the point that one must seriously question their skill levels in operating both their satellites and their uplinks to the satellites. SKY will have to pay for this problem if it continues by answering to subscribers who find signal outages and erratic satellite behaviour detrimental to dependable satellite service. If everything about the satellite system works perfectly, Sky may well get reasonable service (except when it rains hard!) from consumers using 50cm range dishes. On the other hand, if Optus service continues to be as erratic in the future as it has been in the past, the individual at SKY responsible for making the "50cm dish size" decision may well wish he had been more conservative and insisted upon a larger dish size.

The fun and games are just beginning.

THE SKY SATELLITE UNIVERSE

SKY has broken New Zealand into 20 "marketing regions" based upon natural geographic clusters and centralised transmitter locations. Not all of the cluster areas are presently operating:

(1) Auckland, (2) Blenheim, (3) Christchurch, (4) Dunedin, (5) Gisborne, (6) Hawkes Bay, (7) Invercargill, (8) Manawatu, (9) Nelson, (10) Oamaru, (11) Queenstown, (12) Taranaki, (13) Tauranga, (14) Timaru, (15) Wairarapa, (16) Whakatane, (17) Waikato, (18) Wellington, (19) Whangarei, and, (20) "All others - treated as one viewing area."

Like all pay TV operations, SKY contracts for transmission rights in contract-specific geographic areas. Programme sources create distribution regions based upon geopolitical designations; Fiji, for example, would be considered as a separate geopolitical entity from Vanuatu. SKY's entrance onto satellite creates several new designated service area problems outside of New Zealand.

By electing Optus over either Intelsat or PanAmSat, SKY is contracting to utilise a satellite service with a fairly tightly defined coverage region. However, the actual footprint coverage of Optus utilising the spot beams originally designed by Optus engineers to cover New Zealand is a bit of a wild turkey shoot since these coverage beams have never been completely quantified. Might they also reach into Fiji or Vanuatu? Only actual operation followed by testing will determine this.

SKY would maintain that their satellite service is only designed for New Zealand and that its use in any other location (other than the Chatham Islands) would be in violation of their programming contracts. That the coverage of New Zealand will also be capable of being received within significant eastern portions of Australia is, however, accepted. The reverse of this has been largely not the case (i.e., reception in New Zealand of the Australian Galaxy service). Galaxy will not knowingly authorise its "decoders" to users in New Zealand (they number fewer than 50 at the present time) and SKY is certain to follow a similar policy of declining to accept viewers located in Australia.

The fortunes of Australian counterpart Galaxy, however, may result in this situation changing at a future date. If Galaxy should cease to exist as a Ku-DTH consumer service because of its financial problems, that this might spark considerable Australian consumer interest in the New Zealand SKY package is certainly possible.

SKY must also consider the very real likelihood that within five years there will be one or more additional Ku-DTH small dish antenna competitors offering their programming into this country. Three separate American firms hold satellite geo-stationary parking rights to satellite locations that are designed to provide a Ku-DTH service to not merely New Zealand but the entire Pacific region (including Australia). Whatever SKY believes it might be doing by 2002 will, again, be largely tempered by the development of competitive services that will follow a model more similar to the Murdoch 100 channel packages or the American 175 channel packages than the now planned Sky-satellite 10 channel package. Over the next decade, nothing being done today or planned is cast in stone.

TECHNOLOGY BYTES

...BITS and BYTES you may have missed in the rush to make a dollar ...

August 23, 1996 / Issue 96-06-29

Satellite TV and Radio

European Bouquet (Deutsche Welle and others) went through a rough patch during the period August 16-18 causing considerable concern throughout the Pacific. Their transponder suddenly ceased to have signal on it on the 16th, followed after some hours by a return of the transponder carrier but no discernible programming. Gradually over the next 48 hours the programming channels (5 TV and 9 radio) returned one at a time with some shuffling of the bouquet location of each (see table appearing below). During the coming-back sequence there was also a period when only the NTL-3000 receivers would decipher the programming, but this was gradually straightened out so that the Pace DVR-500 and Panasat IRD520 units were once again functioning. Initially, when the EB first appeared in April, the System Information (SI) software only allowed the NTL 3000 to receive the transmissions. A software correction early in June expanded the receiver universe to include the Pace and Panasat units. At the end of the erratic problem period, whether by coincidence or planning, new programmer MCM Paris (24 hour music video service) was first-time operational. At this point in time only the Italian RAI Uno programme channel is not available although the service claims it will join the bouquet sometime during September.

Chinese broadcaster CCTV, on PAS-2 in S-A MPEG for 10 months sharing a "bouquet" with other Hong Kong uplinked services, has struck out on its own. The service is now found on PAS-2 at an IF of 1433.5Hz, sharing a half transponder with Australian Value Channel (see below). The new parameters are symbol rate 19.8, FEC 3/4, IF 1433.5. Further discussion of this appears here on page 10.

Australian (The) Value Channel has been experiencing problems with the shared transponder it uses with Chinese CCTV (see above) on PAS-2 . TVC moved to horizontal transponder (1400IF) early in August; is uplinked to satellite by Optus (through an 11 metre antenna) from Bell Rose in what is a difficult act to balance. TVC occupies 50% of the transponder through its analogue service while simultaneously the Chinese occupy their half in MPEG mode from a Chinese uplink. The responsibility to ensure that both halves are equally loaded (i.e., neither user takes more than 50% of the available transponder downlink power) is in the hands of PAS-2 operations in California which is given the job of monitoring power usage. It has not worked very well to date; TVC at cable headends varies widely, mostly being down from 5 to 7 dB from its pre-transponder change levels. Cable headend dishes in the 3.7 to 4.6 metre class have suddenly been unable to use the PAS-2 service since this problem developed. As of 19 August TVC engineering was in the fifth day of co-ordinating with Optus, at the uplink, and PanAmSat in California to attempt to get to the bottom of the difficulty. The Chinese agreed to take their service off of the transponder for a 3 hour period on the 19th to allow further testing; the shut down proved quickly that with China "off" TVC was clean and clear. When the Chinese service returned, TVC immediately fell into the noise again. TVC is complaining, PanAmSat is investigating.

SA-9223 users. There are three user accessible "reception modes" known (at this time). In Mode "1," called "DVB Mode," the receiver is set up to receive only the PowerVu encoded services. This is the mode the receiver is set to when it comes out of the box from the factory. In Mode "2" the receiver goes to an "MPEG Mode" (see page 10, here). In Mode "3," the "PED Mode," the user is able to modify the receiver's PID numbers to change the way the receiver deals with the SI (system information) data stream. As adventurous users explore these

-NEW European Bouquet Programme Channel Alignments-

RF: 4000. IF 1150. Satellite: AsiaSat 2, 100.5E.

TV programme channels: (1) Deutsche Welle (video not operating 19-08-95; see 3); (2) MCM Paris (audio on left hand channel nominally); (3) RAI Uno (but is actually carrying DW as of 19-08-96); (4) (R)TVE Spain; (5) TV5 Asia (Paris). Radio programme channels: (6) DW Radio 1 (stereo); (7) DW Radio 2 and 3 (mono); (8) DW Radio 4 and 5 (mono); (9) YLE/RCI Radio (mono); (10) SAI/World Radio Network (see CTD 9505, p.15) (mono); (11) REE; (12) DW Radio 1 (stereo); (13) DW Radio 2 and 3 (mono); (14) DW Radio 4 and 5 (mono).

-Fun and Games With the S-A 9223 PowerVu-

The factory admitted "**Not** MPEG-2 DVB Compliant" compatible Scientific-Atlanta model D9223 PowerVu satellite receivers may turn out to be compatible after all. It is not a question of "can you make this receiver work on DVB Compliant services" but rather "*Why did S-A go to such extreme lengths to make users **believe** it was not compatible?*"

S-A engineers in Atlanta and Sydney were insisting as late as mid-July that the only way a D9223 user could transform his PowerVu receiver into an MPEG-2 DVB Compliant receiver was to return it to the factory or Sydney for "modification." S-A claimed that after the modification, the receiver would be "DVB Compliant" for only a single programme channel on a single transponder (such as Deutsche Welle on AsiaSat) but warned it would be useless for normal PowerVu service post-modification.

This, it seems, was deliberate misinformation from S-A.

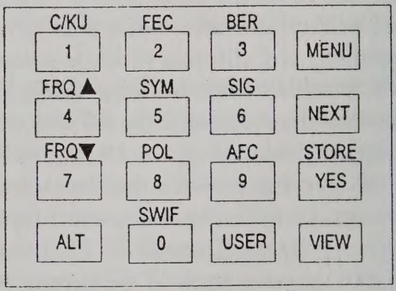
DTH enthusiast **Robin Colquhoun** (Auckland) may have been the first to tumble to a front panel set-up routine that immediately results in causing the receiver to be "MPEG Compliant." There is a keypad sequence that seems to circumnavigate the restrictions of PowerVu allowing the user to "tune in" at least some (Colquhoun claims "all" but that is still disputed) more or less "compliant" MPEG-2 transmissions (examples: NBC on PAS-2, European Bouquet on As2). Colquhoun, fearful he had discovered a CIA file that might land him in hell, gleefully demonstrated the performance to numerous users of the receiver but refused to share the information (ah yes, the power of the keypad!).

Next to unearth the buried treasure was Bay Satellite's **John Lynam** who, perhaps with the assistance of a "friendly" at PanAmSat, claims he was forced into sorting out the question because of a transponder change August 15 by nominally free to air (but MPEG) services from China's CCTV (see separate report, here). Numerous New Zealand-Chinese clients of Bay Satellite (including the Chinese Embassy) suddenly lost their CCTV service when the broadcaster changed transponders and the PowerVu would not, in its factory set PowerVu software configuration, access the new free to air data streams. For Lynam it was a commercial matter to find a solution; for Colquhoun, it was a secret that only he knew and he liked it that way.

The secret?

The front panel keypad is illustrated. The steps are sequential and the number indicates the sequence for keypad button pushing; not the keypad number.

#1/ Menu
#2/ User
#3/ Next
#4/ Yes
#5/ "6"
#6/ User
#7/ Yes
#8/ View



At this point your receiver is in "MPEG Mode" and you should verify through the installer's menu that the receiver has the correct normal reception parameters entered (i.e., the RF/IF, the FEC, the symbol rate) for the service you are trying to access.

Dangers?

As S-A has refused to discuss this procedure (nor to agree it is a valid one) we make no representations concerning ill effects of driving the D9223 with this sequence. Lynam and others report that by using the installer menus and the PID numbers published in SatFACTS (issue #22, p. 8) they have been able to "surf" a number of channels which are otherwise "out of bounds" (example: audio on ESPN-2, no video which undoubtedly is a matter of refinding the correct video PID; it apparently has been changed by S-A to avoid just this scenario). Colquhoun in response to his "secret" being out? "*Whatever you do, don't push 0!*" One must ponder why; are there more secrets to unlock here?

-Worthy of Note-

Pundit John Watkinson writing in TV Technology of his impressions with new digital video production equipment at NAB '96. In question: Why would a broadcaster opt for a "professional" digital format such as the Sony SX when the Panasonic DVC consumer hardware produces the same level and quality of "data bytes?" Writes Watkinson: "*I am not sure how a data byte knows whether it is professional or consumer. With DVB (digital video broadcasting), data bytes leave the transmitter as professional data but are somehow transformed to consumer data at your TV set.* ***I can't explain that.***"

various menus and sub-menus a wealth of user data, not available through S-A, is developing. It will be inevitable that sooner or later much of this will end up on someone's web site.

Pace MPEG-2 receivers, promised first in May and subsequently delayed month by month, appear no closer to being shipped. There are two distributors known to be expecting the units: Skandia Electronics (Melbourne) and Pacific Satellite (Hong Kong). Skandia claims to have received a sample for testing (using the European Bouquet service), Pacific says it has seen no sample. The conditional access and Irdeto software remain the stumbling block. Pace supplies a version of this receiver, the DGT-400, to Australian Galaxy. It does so having negotiated a software / conditional access system use agreement with Irdeto. Pace, in supplying Galaxy, has promised in the contract it will not ship into Australia any other receiver "*capable of being utilised on the Galaxy reception.*" Galaxy is concerned that an MPEG-2 friendly version of the receiver will be field modifiable to their service even if that was not the intent of the manufacturer. Irdeto, meanwhile, is concerned that a non-conditional-access capable version of the DGT-400 will still violate their agreements with both Pace and Galaxy. To resolve this Pace must somehow modify the DGT-400 into a new format which cannot be (easily) field modified to be usable with the conditional Iredeto conditional access system used by Galaxy. Pace had initially proposed "blocking" the conditional access (CA) "slot" in the receiver to prevent someone from inserting a CA module. A mechanical block did not impress either Galaxy or Irdeto. Iredeto wants the box internally "hobbled" to ensure that short of a creative technical tinkerer, the new version cannot be put to the wrong use. Galaxy is insisting that it continue, per their contract, to be the sole source for both the Irdeto-controlled conditional access system as well as the "Smart Cards" that form a part of the authorisation routine. There is a subset of this: The Panasat IRD520 receivers now widely available in the Pacific through several distributors. The IRD520 is a near duplicate of the DGT-400 as well, although designed for the South African Multichoice programme package. Multichoice launched at about the same time as Galaxy with near-identical Irdeto licensing. The IRD520 units being received into Australia and used for European Bouquet and other MPEG-2 format services come equipped with both the conditional access modules and often a sample "Smart Card" as well. There are those who claim the IRD520, by being available in Australia, also "violates" the Irdeto agreements with Galaxy. In the real world none of this probably is important since the flow of even the IRD520s is in the under-100-lot range per month at this time.

Nokia model 9500 series MPEG compatible receivers will probably be the next to appear in the marketplace in quantity; sometime late in September. The Nokia is more than a mere satellite receiver as it contains a versatile MPEG world software navigation programme that actually allows the user to select not only FEC and symbol rates but the various PID/PED/TID parameters as well using a (they claim) "easy to navigate system." Equally impressive, the Nokia system is promised to be in the A$1,000 price range to the ultimate user; a significant price break from the present A$1500 level of the Panasat IRD520. Sister publication SatFACTS will review the 9500 as soon as it is available in test quantities.

A Grundig model 3000 MPEG-2 receiver, recently released in Europe and reportedly to be available through Australian distributor AV-COMM Pty Ltd, is said (by European sources) to be the Panasat IRD520 "rebadged." A Grundig distributor in Germany advises the receiver has been "slightly redesigned in the software section" to deal with the plurality of newly available European MPEG-2 start-ups; how these software modifications will effect the often temperamental operational characteristics of the original IRD520 under Pacific conditions is not known (for a report on the IRD520 and its erratic usefulness, see SatFACTS #23, p. 12).

Echostar, USA DBS operator and manufacturer of companion "DISH" (Ku DBS) receiver, is ready to begin shipment on "second generation IRD" for consumer reception systems. Working with SCI Systems, Echostar has compacted 12 ICs into single new "super chip" making possible additional economies in receiver manufacture. New IC device provides MPEG-2 transport decoding breaking incoming satellite data stream into audio, video and information data streams including doing descrambling.

US competitors to Echostar's "DISH" Ku DTH service are combining forces to offer rebates that will drop price for complete home DSS system to US$199. Echostar had previously announced US$299 price provided DISH subscribers agreed to take one year service package valued at $300. In response to competitive move, Echostar responded by also dropping its complete home dish system package to $199, still based upon buyers

-Scientific Atlanta's Attempt To Force A PowerVu 'Standard' in Australia-

In a digital television world where standards seem to have become subject to many interpretations, enter Scientific-Atlanta with a significant sale of PowerVu format equipment to the Australian ABC. This occurs at a time when the ABC is converting from analogue to digital satellite transmission techniques, ostensibly for the purpose of making more efficient use of their satellite interchange network operated through Optus satellites.

At risk are an estimated 10,000 RABS/HACBSS privately owned TV terminals presently fed B-MAC encrypted analogue television programming from ABC, SBS and several regional Australian telecasters. These terminals were designed at the outset to provide remote homesteads, mining camps and other location-disadvantaged people with access to at least some television service and first went into operation in 1986.

One of the original suppliers of B-MAC decoders for this service was Scientific-Atlanta. In the last few years these decoders have become increasingly difficult to source and the growth of the system has virtually stopped for a lack of equipment. It is an "open secret" that eventually the B-MAC service will be replaced with some form of digital video transmission.

But which form or format?

S-A, by making a sale to ABC of their unique PowerVu format system, would like to hope it will be their system. ABC may or may not be leaning towards an S-A MPEG migration for the RABS/HACBSS users; they are not saying. Other system users are not so quiet on the subject and during the last month have begun to voice their objection to being forced to accept a proprietary format such as PowerVu.

David Soothill, Director Communications and Planning at SBS (Special Broadcast Service), writes:

"*The conversion of the Remote Area Broadcasting Services* (RABS) from B-MAC technology to digital delivery technology will supersede the existing B-MAC receivers. Those people who wish to continue with the service (we hope that will be everyone) will need to replace their receiver with a digital receiver. Some people will also need to repoint their dishes and/or upgrade their LNB. At this stage we do not believe that dish upgrades will be required although this cannot be formally confirmed until all planning is finished and we have entered into a contract for digital services.

"*The RABS technical group* is insisting upon MPEG2 technology with a strong preference for DVB Compliance. While we are somewhat constrained by the range of possible service providers, we believe that the outcome will be DVB compliant or extremely close to that standard. Frankly we are concerned about issues of interoperability and would prefer to have a range of digital receivers available from a number of manufacturers."

Richard Kelly, Manager of regional broadcaster Imparja Television, writes:

"*The new system will use the internationally standardised* MPEG-2 compression standard and, generally the European DVB specifications for digital modulation, error correction, encryption and possibly for the conditional access management system. The main aim of both the engineering and policy committees is to achieve economies for the various TV service operators by sharing uplink facilities and for consumers by achieving the utmost compatibility between the household IRD used for free to air and for 'pay' services. Another major aim is to avoid a single proprietary system for the household IRDs by utilising equipment already in widespread use overseas with the anticipated cost savings from large scale overseas production.

"*The present expectations* are that the transition to the new system will begin mid-1997 and be completed by the end of 1997. There will be a short period during which both analogue and digital transmissions will be delivered from the OPTUS satellites after which the analogue B-MAC system will be closed down. To date there has been no indication of readiness of any of the (state) governments whose constituents are affected by the change to assist in funding the cost for viewers. Present indications are that the installed cost of household IRDs for the CDV system will be near $1,000. The professional IRDs required for the retransmission sites serving most of Imparja's viewers may be nearer $10,000 and this cost will be borne by Imparja."

Sources at both SBS and Imparja take pains to point out that with the established base of MPEG-2 Galaxy service decoders already available, there is a "defacto" standard operating in Australia. Neither would be disappointed to see the new digital services due in 1997 following the same transmission format now used by Galaxy. S-A, of course, has alternate plans.

agreeing to take $300 annual programme subscription package. Bottom line: 30+ channels of satellite TV, for one year for US$500 (hardware included). Home DSS/DBS systems totalled 3.46 million in US at end of June 1995, are forecast to top 8 million by end of this year; more than doubling in 18 months.

STAR TV plans to go into a commercial MPEG mode selling subscriptions in Indonesia on 1 October. The initial service package, to be available on a Palapa C2 transponder designed to serve only Asia (3E, 1650IF horizontal), is the basic Star package now available for Asia proper plus the addition of an Indonesian film channel. Star has put out feelers to regional hardware distributors asking for input on making this MPEG package available outside of Indonesia but even if they elect to accept non-Indonesian subscriptions the usefulness of this package much further south than extreme northern Australia is limited by the lack of footprint coverage.

JET-TV is new 24 hour daily Asia-Pacific service scheduled for distribution sometime in September, probably via PAS-2. JET-TV is owned by consortium that includes Japanese Sumitomo and USA TCI International. Service plans to broadcast in four languages (English, Japanese, Thai and Mandarin) drawing significantly from Japanese terrestrial network sources including Nippon TV and Tokyo Broadcasting. The channel will be programmed with documentaries, drama, animation and variety and initially targeted at cable TV systems in the Pacific and Asian regions. The service will uplink from Singapore under the auspices of Jupiter Programming.

European BSkyB satellite programme packager is adding 11 new service channels before end of year, and raising basic subscription rates at same time. Service is well known for creating time slots as short as 2 hours per day and labelling the time slot a "channel" and often places multiple "channels" on same transponder (real channel) spread over time during day.

First African "independent" TV channel, DAAR TV, is being established with Nigeria as base. Service will be distributed continent wide, a first in Africa, but satellite and start date not revealed.

DIRECTV Latin America is now launching in Brazil and Venezuela, will expand to Mexico, Argentina, Chile by October, balance of Latin America during first quarter of 1997. Service consists of 72 Spanish and 72 Portuguese TV channels with programming packaging based upon the target area. Individual packages have been designed to appeal to viewers in Colombia+Ecuador+Venezula, Brazil, Mexico, and Argentina, Chile, Paraguay, Peru and Uruguay. Consumers will spend around US$600 for the complete DBS reception package (60cm dish) and typically pay US$30 per month for their basic programming package. All will also have optional extra channels available as well including 30 minute time staggered movie starts on pay per view channels. The system includes uplinks operating from Caracas, Mexico City and Sao Paulo.

DW-direct and German based Net-On-Air are scheduled to begin satellite delivery of a 100 kbps access link to Internet in October. The system works as follows: MPEG-2 satellite receiver, connected to dish antenna system accessing European Bouquet from AsiaSat 2, is linked via cord to your PC printer port and the printer in turn is dragged through the decoder. Windows 3.xx/95 software is required in the PC. The system transmits "the heart of Internet" directly to the user's PC through the satellite connection and is provided without cost. The user follows standard Internet HTML format procedures to browse through pages of material, save or print material as desired. Deutsche Welle had promised this service when it appeared at the SPRSCS '96 show at Auckland in January. The price of the decoder accessory has not been released; information is available from Horst Wieser at fax 49-911-44-0008.

Trade association SPACE Pacific, following up on the entry of SKY Network into the satellite DTH world, is scheduling a "*Satellite TV for terrestrial aerial installers*" series of courses built into the SPRSCS 1997 trade show in Auckland January 21-25. SPACE anticipates on behalf of members throughout New Zealand an increased interest in small dish Ku-band DTH techniques and plans to provide a comprehensive training service without regard to what SKY itself may elect to do with its existing aerial rigger installers.

Digital TV and Radio

UK Digital Group began field trials of digital terrestrial TV in London region July 4th. Initial multiplex consists of 3 BBC channels plus electronic programme guide. Purpose of testing is to determine parameters for creating time table to cause all UK television to shift from analogue to digital format by a date certain (to be set).

As serious first step to conversion of present analogue TV system to digital TV system in USA, FCC has announced it will cease to consider applications for changes in existing analogue TV station technical facilities after 1 September. At same time, FCC will "freeze" existing analogue allocations table, making it virtually impossible for any new analogue TV station to be approved except under most unusual conditions. FCC is also on verge of announcing digital TV (DTV) channel allocation plan to allow new DTV stations to begin construction. The overall concept is to begin the process of replacing analogue with digital and to eventually gain back to the FCC the present analogue channel spectrum which will then be reallocated for various public safety and other two-way communication users.

-Australian Doublespeak: Bureaucracy at its worst?-

The April issue of SatFACTS Monthly published excerpts of a letter addressed to an Australian SatFACTS subscriber from Senator Richard Alston, currently the Minister for Communications and the Arts. In that letter the Senator wrote, without equivocation:

"*Currently there is no restriction on individuals receiving either free to air or pay TV signals from international satellites. There is nothing legally preventing individuals from purchasing a satellite dish and decoder and tuning in these services. However, the retransmission of pay TV signals, for instance on a local cable network, will be illegal until July 1997.*"

The matter of owning a satellite dish, a decoder, and actually paying for a subscription to a non-Australian originated programming service on an individual (non-commercial) basis has been hidden in a grey area for some years. Senator Alston's letter was the first instance where someone in authority took the time to clarify the issue for the record. And as the Minister of Communications, the clarification could not be expected to be questioned. For the record, New Zealand has no law nor regulation on the books regarding subscription to international pay TV broadcasts although it does address illegal reception using piracy devices (such as "hacked decoders") within the context of the 1994 Copyright Revision Act.

Alas, government bureaux seem to have a life and management style of their own, quite independent perhaps of the government of the day. Comes now a letter addressed in direct response to another SatFACTS reader by a government official. The April 1996 report from the publication had been forwarded to the Department of Communications for a response. This is the answer from Beverly Hart, Assistant Secretary, Licensed Services Branch of the ABA.

"*I refer to your facsimile letter of 24 April* requesting advice on an article in SatFACTS Monthly regarding the reception of foreign broadcasts in Australia. I am able to provide the following general advice on the regulatory framework under the Broadcasting Services Act 1992 (BSA).

"*The BSA does not prohibit* the private reception of broadcasting programs delivered via a foreign satellite. Nor does the Act expressly prohibit the sale of equipment that enables reception of programs delivered via satellite.

"*However, sections 131-135 of the Act* provide for strict penalties where a person provides a commercial, subscription or community radio or television broadcasting service to Australia without a licence. The offence provisions can apply not just where the broadcasting service originates from within Australia, but also where the service is transmitted via satellite from a foreign country.

"*Whether a particular service* falls within the specific categories of broadcasting service provided for in the BSA will depend on the individual circumstances of each case. It is also possible that a particular service will be a 'narrowcasting service', e.g. a service that is targeted to special interest groups. Narrowcast services are licensed under a class licence system, where services are provided via an open, standing authority. Those who wish to provide a service within the terms and conditions of the authority do not need to obtain any form of service licence from the Australian Broadcasting Authority (ABA), the independent statutory body responsible for the administration of the Act.

"*There may be situations* where a person who sells satellite receiving equipment to customers will be involved in 'providing' an unlicensed broadcasting service. This is more likely to be the case where the vendor sells satellite receiving equipment that is specific to an unlicensed broadcasting service and is necessary for the service to be received (e.g., decoder) and/or where the equipment is sold pursuant to an arrangement with an organisation that transmits the broadcasting service via a foreign satellite, or with an organisation that supplies such programs for satellite transmission.

"*While I trust that the above information* will help you to assess your own situation, I should emphasise that whether particular arrangements will contravene the Broadcasting Services Act will depend upon the circumstances of each case and is a matter on which you would need to seek private legal advice.

"The ABA has powers (1) under section 21 of the Act to give an opinion to an applicant as to which category a proposed service falls into (i.e., whether a service is a narrowcasting service or a broadcasting service)."

1/ Mr. Peter Webb, Chairman, ABA, PO Box Q500, Queen Victoria Bldg., Sydney NSW 2000

First USA operational HDTV station became operational July 22, operated by an existing analogue broadcaster in Raleigh, North Carolina.

Consumer Electronics

DVD before Christmas (1996) remains an elusive, very unlikely scenario. Search for suitable form of copyright protection system, acceptable to all portions of industry including movie (software) suppliers continues. Movie distributors want system that is "tamper proof" while numerous hardware suppliers back each of four separate and not compatible encryption systems under study. In separate move, two primary DVD patent holders Sony and Philips have announced terms for licensing of other firms to their technology. Pair will charge other manufacturers 2.5% of manufactured cost per DVD player and US4.5 cents per DVD disc pressed. That is not the end of the patent royalty payment schedule for others; another 8 royalty payments are likely to go into any DVD player manufactured leading to fears total royalty costs per player could approach US$60 per player. Sony and Philips had previously been part of international patent pool consortium that was seeking to offer "one stop service" for manufacturers, providing single source full-patent package for DVD manufacture. This consortium set upon itself squabbling over who owned which rights, which patent was the lead and ultimately dissolved in disunity. This could get very messy before DVD finally is established: Matsushita claims to have nearly 900 patents dealing with DVD and various claimants wishing to enforce their own patents are having very difficult time sorting out amongst themselves "*who was on first*," first.

American firm Datron Systems has begun delivery of DBS-4000 "vehicle in motion" direct broadcast satellite (DBS) reception system. Vehicle (car, plane, boat, train etc.) in motion uses Datron developed antenna and tracking mechanism to ensure the Ku-band DBS service satellite signal stays "locked" at the vehicle although the vehicle is in motion. If the satellite loses "line of sight" to the vehicle, reception does, however, stop for as long as that condition continues.

Philips has major cost cutting plan underway, will slice 6,000 job positions primarily in Europe but elsewhere as well, following US$273 million loss in second financial quarter. Overall, Philips work force will go down by 15% world-wide. In another area of major cost cutting, Philips will reduce from 25 to 6 the number of separate TV chassis it produces relying heavily on add-on peripherals to differentiate numerous models built around the 6 chassis designs.

Cellular phone NiCad and NimH batteries charged in 20 minutes (versus several hours for most chargers) , camcorder batteries charged in 35 minutes is claim of new Hanwa America product selling for US$99 in America. Product uses proprietary IC that tracks state of battery charge, reducing current in final charging minutes to compensate for rising voltage level.

WEBTV, Internet browsing capability built into TV receivers, will grow rapidly during balance of the year. Philips, Zenith, Sony and Thomson, jointly responsible for more than 50% of all TV sets sold in USA, have announced individual plans to build into new TV receivers Internet ability. Initial product, available over next 90 days, will be set-top box that plugs into TV set A-V input/output jacks to give set this capability; pricing will be between US$200 and 500 initially. The set-top unit contains 33.6 kbps modem and 64 bit Orion MIPS RISC microprocessor. Box has "Smart Card" slot for user charging purposes, LED that flashes when user has e-mail even if user is not "on line" at the time. System allows for up to 5 separate users per box, each with individual e-mail address and PIN numbers.

AT&T is selling DSS (Ku band Direct TV) systems through Kiosks it has placed at Sharper Image and Tower retail outlets throughout America; first step to wider marketing plan. AT&T purchased share interest in DSS, has option to procure more over time. Primary marketing advantage for AT&T is their almost universal reach to consumers throughout USA and offer to finance the purchase of systems (typically US$600 range) on combination telephone calling and charge device known as "Universal Card."

Digital still camera prices have dropped in Japan; Chinon with list price of US$285 is now on offer at US$185 while Kodak model at US$350 is selling for $275.

Goldstar/LGE is making largest-ever investment in history of UK in new Wales semiconductor and consumer electronics manufacturing complex. Facility will occupy 250 acres, cost US$2.6 billion and employ up to 4,400 persons. LG plans to manufacture chip wafers initially, will grow plant to also build full range of TV components and assemble widescreen TV receivers.

Pocketnet is new AT&T cellular telephone with built-in 3" LCD screen allowing creation and receipt of e-mail through automated Internet connection. In USA, AT&T plans US$30 monthly connection fee and unit will sell in US$500 region.

Compaq has demonstrated first "flat panel (screen)" PC. Presario 3000 PC has 12.1" Sharp produced TFT LCD. Unit is 10" (254mm) deep, contains 4-disc changer, 166 MHz Intel Pentium processor, 24 Mb RAM, 2-Gb hard drive, 33.6 kbps data/fax modem and videophone capability. Unit has list price of US$3,499.

-The Perils and Pitfalls of Galaxy Digital Satellite Reception in NZ-

The following is from the dairy of satellite system distributor Bruce Barnett of Barnetts Radio and TV Service Ltd in Wanaka.

"*We were recently asked to install* a Galaxy Ku decoder DGT-400 by a client who has a holiday house locally. He lives in NSW and has a holiday house here. The client owns a 3.7m dish with a dual feedhorn and a Ku band LNB. I thought this would be straight forward; think again.

"We decided early on to have a play with our the DGT-400 on our own dish which happens to be an exact copy of our client: a KTI 3.7m mesh dish, a polar rotator dual feedhorn, an Echostar C band LNB and Quatro Ku-band LNB. Using the tuning guides published in SatFACTS we configured the unit to the European Bouquet on AsiaSat 2 which we did without any problem. We were thrilled to witness our first-ever digital TV and marvelled at the quality of the reception. When we changed to PAS-2 and checked out NBC we were rewarded with instant success. The next move was to try it on Galaxy via Optus on Ku-band. Following the SatFACTS and menu instructions we reconfigured the receiver for our LNB local oscillator (10,750). After making sure the dish was optimised on B3 by using an analogue receiver we were rewarded with occasional bits of picture and stuttering audio. By early evening, and much more tweaking, we had improved the reception to quality pictures with only an occasional loss of signal (drop out).

"*The next morning arriving at the shop* we were greeted with two dashed lines on the receiver LED front panel; the manual told us this meant a loss of signal. We checked the signal detection display and still had the 1.25 blocks on the top row and 3.5 blocks on the bottom row; no apparent change in signal level but now mysteriously no reception. Hummm.

"*A few telephone calls* to some others in New Zealand and we learned that the performance would improve if we used a dedicated Ku-band feed. Out to the antenna, change out the feed and try again. No difference; not one iota of improvement. Next we were advised to remove any line amplifier we had; we did and the signal detection circuit said it was worse. Then we were told to remove any line splitter, which we did. It got worse, again!

"*By 6PM it was mysteriously working again* and for several days it would work from about that time until 12 midnight, and then not work at all the rest of the 24 hour period. By now we had been told that a dedicated Ku-band dish was the answer.

"*On a hunch I removed the plastic protective cap* from the front of the feedhorn and we were instantly rewarded with perfect pictures in the daytime where none had existed before! The signal detection display now said we had 1.5 bars of signal and a quality of 4.

"*Well, now we could relax*. We thought. The big event was a sport event to be live on Galaxy at 3AM. We invited everyone we knew to get out of bed and come down to watch it with us. Unfortunately most everyone invited turned up ... and, while the signal detection display said we still had 2.5 signal units and a signal quality of 4 .... there were no pictures there at all. No matter what we tried, nothing. At all.

"*How embarrassing.* Will I ever live this down?

"Back to the drawing boards. We spent several hours truing up the shape of the dish with strings and sundry measurement tools. And it seemed to work much better. Just as a test, last night I left my VCR on to check on the reception through the night. At precisely 1AM it quit, again. Well, I will try again tonight by putting the line amplifier back in the circuit.

-to be continued-"

-Coop's Postscript-

The unfortunate truth in all of this is that while probably the dish selected was not the best choice for this "test," the real problem here was not the system but rather the "lack of operational standards" by Optus. Two Auckland area observers have meticulously recorded the off-satellite levels from Optus for more than 18 months. Both records indicate significant variations in Optus B3 and B1 signal levels through the day and night, totally unrelated to weather or other natural phenomenon. The bottom line is inescapable to virtually everyone except Optus engineering; they "fly" their birds badly, the birds wobble in flight (as in pivoting around a central core axis) and the fringe area signal levels bounce up and down as a result. SKY with their Optus Ku service ahead has all of this to learn; the hard way.

Cable/Fibre/MMDS/Pay TV

Australian Galaxy is at our press deadline facing imminent financial collapse. As of August 19th, Galaxy shares were trading in the range of A$0.10 to $0.14 against a backdrop of almost certain foreclosure. Share trading was suspended late on the 19th. The firm has gone through A$125 million since April and reportedly ran out of operating funds around the 26th of July. Internal reports indicate Galaxy has been spending upwards of A$500,000 each business day beyond its receipts. Numerous rescue attempts are still in process as we go to press. The American backers have indicated a willingness to put up an addition A$90 - $100 million but only if existing debtors take a back seat to the assets. Packer's PBL is unwilling to proceed with his own rescue attempt unless Galaxy agrees to make its exclusive programming available to Optus Cable which is 5% owned by PBL. Of all of the "assets" held by Galaxy their programming deals for exclusive distribution rights have the greatest value. If Galaxy agreed to share those with Optus, on terms far more generous than Optus competitor Foxtel now must pay, the balance between competitors Foxtel and Optus Cable would shift dramatically. **NOTE: On August 21st PBL, Optus Vision and Australis reached a last second agreement which will see Optus gaining access to Galaxy programming and take over Galaxy satellite (DTH) operations. Galaxy as an entity will effectively disappear into the corporate woodwork of Optus. The brokered deal was led by PBL.**

Saturn has done an official but "soft" launch of its new Hutt Valley cable television system (August 15). The hybrid fibre + coaxial cable network has adopted the operating slogan "*It's A Whole New World*" to describe the appeal of its reported US$40 million investment. The system launched at a party held in Avalon's Studio 8 complex with 250 invited guests. Saturn's parent UIH International is still planning to bring, via Intelsat satellite feed, ten or more new European and North American origin cable television channels to the Saturn system before the end of this year.

Telecom NZ's cable TV trials are being touted with specially written newspaper reports that have begun to appear in regional newspapers. A Christchurch paper recently printed an in depth report that included some perhaps interesting insight into Telecom's programming plans. The report noted:

> "*With Telecom New Zealand subsidiary, First Media*, we will have cable running past 70,000 homes in Auckland and Wellington within a few months. First Media will bring cable to Christchurch but no date has been set yet. First Media gives householders in a newly cabled street the chance to subscribe. The fee will be cheaper than Sky Television charges, though there is a connection charge of about $100 to covert the coaxial link from the fibre-optic in the street. As well as normal pay television, First Media will offer pay-per-view channels. These will include a range of movies playing 24 hours per day. Each movie will play on a number of channels with starting times staggered in 30 minute intervals. There will be a 24 hour music video channel for youngsters and they will be able to phone in for video clips and be charged a small fee for each such request played. First Media has brought this programme (channel) in from an overseas company which will do research in New Zealand and adapt it to local tastes.
>
> First Media is attractive to computer users as in the future it will have the capacity for high-speed connection to the Internet through cable modems. Beyond that lie two-way telephone communication links for home banking, shopping and other uses that will emerge to use the new technology. Over the next five to ten years, First Media's channels will bring more change to New Zealand families than any other new technology.
>
> First Media will target the easiest markets first - the larger cities. It would like to spread to as much of New Zealand as possible. This may not always be possible with cable. However, the company is not locked into cable as it will be able to diversify to any suitable technology."

And so the battle for the minds of New Zealanders and their expectations of what cable television will mean to each resident has begun. May we all forgive them for placing hype before fact, wishful thinking before substance. It is still possible to fool some of the people all of the time; and all of the people some of the time. But, thankfully, not all of the people all of the time.

TV3 is following the lead of Television New Zealand in drafting of cable television retransmission (copyright) agreements for able TV systems. Both firms ask that cable operators place the national networks on cable channels which are an attempt to establish preferential "dial positions;" TV1 on cable channel 1, 2 on cable channel 3 for example. The reality is that cable systems for sound technical reasons are often unable to provide such numbering because of the way the cable TV set top converters are configured (there is no channel 1 on virtually all cable converters, for example). TV3 also demands cable operators "*schedule all maintenance between the hours of 5.45AM and 11.45AM Monday through Friday ... excluding public holidays*." No cable operator contacted by CTD plans to sign the agreements as initially drafted.

NBC Asia has reached a decision concerning use of its programming by independent UHF television stations in New Zealand (CTD 9506, p. 19). It is, basically, "no use" unless the station is prepared to part with minimum fees of nearly US$1,000 per half hour segment. NBC advised several UHF telecasters August 19 it has now

-SKY: A Festering Problem With Independent Moteliers-

Readers are referred to CTD 9409 (September 30, 1994) and an in depth interview with SKY's John Fellet. In a rambling 18 page report we provided significant insight into the management direction of the pay television network operator. We quote from a portion, now nearly 23 months old:

"CTD: *I've studied your rates* for both home and commercial use, and compared these rates with those charged in other portions of the world. I have to say to you that your motel rates are high by world standards. I am concerned that if a direct to home package of programming comes here via satellite, the first place you may feel the competition is in the motel and hotel market. Are you prepared to deal with motels being offered more channels at lower prices through satellite delivery?

"Fellet: *Well, actually our home rates* are higher than most other regions.

"CTD: *Yes, but you have* higher costs. I'll defend you on that one.

"Fellet: *But you won't defend me* on my motel rates?

"CTD: *It is not defending you* that brings this question to mind. It is your susceptibility to competition. If there is a competitive threat to SKY's commercial business from bundled satellite services, what do you do to react?

"Fellet: *I suspect the loss* of commercial business would be the least of my problems if there was a competitive satellite delivered package of channels available here. At the moment commercial business amounts to approximately 5% of my total business.

"CTD: *So if you lost it all tomorrow*, that would not be the end of SKY?

"Fellet: *That's right.* But anyone who put together a viable threat to my commercial business could probably also make a viable threat to my home business. That would concern me."

...

Segue now to what follows, provided at our request by a motel operator whom we encountered attending the recent annual MANZ affair held in Hamilton. He and a sizeable group of moteliers were camped in a lounge exchanging bitches concerning their perception of SKY and the way it treats motels. Their bitching is more than loose bar talk and sooner or later SKY will have to face the firing squad that is now assembling.

-"The Ramblings of a Slightly Mad Motelier"-

"*I am a patient man*, would like to believe I am a reasonably good businessman and like most of us hope to make a decent, living wage return out of my business. I own a motel along with some 1,700 other New Zealanders who care for the weary traveller.

"*I have seen the fads* come and the fads go. Waterbeds: once all the rage and now the rooms so equipped are usually the last to be rented. In this business you are forced to second-guess before the event what your guests may want, or think. A couple of years back SKY Television came to our fair town. We had been given so many different start dates that when they actually did start it was almost a non-event. A personal visit from one Tony O'Brien quickly dispelled all of my own clever ideas:

NO ... you can't put SKY in only some of your motel units.
NO ... SKY will not pay anything towards the installation.
NO ... Not even the aerial.
NO ...your existing wiring is not good enough for our special signals.

"*The next shock was* ... How much is this going to cost me? Domestic SKY was $9.99 per week at the time and since the motel industry was believed to enjoy a 60% occupancy, then the commercial rate would be $6 per unit per week. PER UNIT! (Should I declare bankruptcy now or try to trade this one out?) Gee, I wish my motel did have a 60% occupancy. Hey, if I did have 60% occupancy wouldn't I'd effectively be paying full price for SKY service in each of my motel units? Mr. O'Brien saved the best until last; with a rewire of my facility and all of those ampliwhatamacallit gadgets my installation would be close to $3,000; Plus gst. And that subscription would be 18 units times $6 times 52 weeks or $5,616 pa. 'Ahem', says Mr. O'Brien ... 'that will be 19 times $6 times 52 weeks or $5,928 pa. You forgot your residence!'

"*The call went out.* Mobilise MANZ (The Motel Association of New Zealand). Surely the trade association can negotiate a better deal for us. Perhaps if we all agree not to take SKY until they come up with a better price? Alas, B, E and Y won't do that because they think they will have a commercial advantage by offering SKY. The rest of the moteliers respond, 'But our guests

-RAMBLINGS / continued-

won't pay anymore to have SKY.' Nothing ever comes of these annual discount discussions excepting of course SKY offers to spend $500 to pay for our afternoon tea during the annual MANZ convention. Let me see here ... $500 divided by 1,700 moteliers. That works out to 29.4 cents for each of us once per year. **Some discount**!

"*So eventually most all of us* ended up being a SKY client and many are left wondering if anybody notices that Mr. SKY was ripping down our trousers. Over time the 'news' surfaces about special deals for the major motel industry chains such as Manor Inns and The Quality Inn. Suddenly folks were talking about SKY rates as low as $1.90 per hotel room per week. Rumours also circulate that SKY had agreed to pay for the full installation costs at the Manor Inn chain. When asked about this, SKY assures us that $6 per room per week is as good as the rate gets for Joe Average Motelier. They repeatedly refuse to enter into any serious dialogue with MANZ which seeks to establish a group rate along the same lines as Manor or Quality. We even agree to single point billing and other back offs but SKY won't get serious about discussions. Nothing comes of it ... except that when SKY grows to 4.5 channels we are advised the rates have grown as well by 5%. It is little wonder that a large percentage of the motels will not carry Orange or Discovery. I wonder if the folks at Discovery Channel Asia realise how poorly SKY has done on their behalf with the commercial accounts in New Zealand? I know (and am learning) about such things now because as a motelier I am actively investigating giving SKY the boot. My first step was to take out a subscription to SatFACTS Monthly. My goodness ... what I have learned there!

"*I take my seething anger* to Hamilton in July where I find not one but dozens - nay hundreds- of sympathetic ears attending the MANZ convention. Hey, I am not the only guy who thinks I am getting screwed. In fact, I notice that the only fellows who walk away from this ad-hoc beef sessions are those wearing big-chain motel name tags. I listen intently to the discussions and hear someone compare SKY to Telecom. Why, I wonder.

" ' *Because Telecom did the same thing* to us with telephone rates. Then along came Clear and now Clear claims 80% of the motel industry business as the preferred toll carrier. Telecom, faced with massive motel business defections, tried to come back with more intelligent deals but the damage had been done.' The comparison is drawn - SKY is Telecom inside a TV set.

"***I think** SKY is more like a horse drawn carriage*, acting as if it is the only such vehicle in town. And charging us based upon scarcity of product, not value. I will bide my time because I know something better is coming. I hear rumblings of it at the MANZ show - 20 channels of TV for a pittance of what I now pay for SKY? ***I can hardly wait***!"

"signed an agreement with cable operators Saturn Communications and Telecom NZ" for the distribution of their CNBC and NBC Asia services in this country, to the exclusion of UHF broadcasters. The issue has been boiling for several months following "interim permission to rebroadcast" granted to Eastland TV (Gisborne) and Mainland TV (Nelson) earlier this year. NBC had attempted to find some "fit" for its programme distribution which allowed both cable and broadcast TV rights to be sold, independently of one another. Cable operators Saturn and Telecom complained pointing out the programming as distributed via satellite is intended for cable (and DTH) viewing and should not be confused with NBC products which are separately distributed for the exclusive initial use of terrestrial broadcasters. In the end, NBC agreed with the cable position.

NBC has apparently also reached a similar decision on allowing additional cable systems beyond Saturn and Telecom to carry its NBC Asia service. Ron Theaker of Taupo CableVision, Inc. received a fax August 17th advising him: "*I am sorry to inform you that at this time NBC Asia will not be offering its programming to smaller systems in New Zealand. However, should our decision on this matter alter, we would be happy to further consider your operation and will contact you directly at that time.*"

Bell Atlantic, parent of Telecom NZ, has awarded US$200 million contract to Lucent Technologies (formerly Bell Labs) for delivery of digital video equipment to BA's Full Service Network (cable and fibre) by September 1997. Contract also calls for Lucent to provide BA subscribers with access to Internet and data interactive services before January 1998. The expansion by Bell Atlantic is its attempt to counter the competitive marketing forces of regional cable TV operates in the middle-Atlantic states where BA operates.

Fox Cable has scheduled launch of Fox News (all news) network, competition to CNN, on October 7th. Inside North America where service will initially be available, Fox claims 10 million homes will have access to the service at turn-on.

Growth of DBS in USA (now reaching 5.9% of US homes, up from 4.5% July 1995) and entry into cable delivery by telephone companies is already being reflected in cable TV ability to sell local commercials. Trade Group TvB, funded by broadcasters, claims cable home penetration is slowly declining against new competition.

US cable TV systems pay annual fee to Federal Communications Commission of US$0.55 per cable subscriber per annum; recently raised from US$0.49. Funds go towards administration of cable TV rules at federal level.

Terrestrial Broadcasting

Approximately 30 new radio and TV licences are to be tendered by the Ministry of Commerce in a new procedure never previously employed in New Zealand. This will be a multiple round bidding procedure; each party interested in a frequency will submit a bid and then the bidders will be told the range of bids received. At this point a new round of bidding will ensue and the process repeated until there is but one final bidder remaining in the game. This "stud poker" approach is in lieu of past bidding procedures where applicants for new licences were given a single opportunity to place their "best bid" for frequencies they wished. A catalogue of available frequencies is available from Maureen Wells on 04-474-2627. This procedure is now underway; interest should be promptly registered.

Television New Zealand Chairman N.M.T. Geary writing in the SOE's annual report makes the following forecasts concerning the encroachment of cable television on the New Zealand terrestrial broadcasting scene:

> *"While some cable television operators have started business in New Zealand or are planning to, they are expected to have little long-term impact on the free-to-air market. Their investment and operating costs are likely to be too high relative to potential income. Consumer appeal is highly doubtful, given the quality of TVNZ's free-to-air channels."*

For the record let's play the numbers game with Mr. Geary. It is our forecast that by the year 2000 TVs 1, 2 and 3 will have dropped their share of audience to 70% in those homes equipped to receive both free-to-air channels and SKY or free-to-air and some form of cable. Any punters out there?

UHF channel 60, operated by The family Television Network (Integrity Television), is scheduling inaugural broadcasts for November 17th from a transmission site east of Warkworth with studios in Snells Beach. Family is operated by a trust and has philanthropic and religious group associations throughout New Zealand. The firm has been producing broadcast television materials for distribution internationally for several years utilising a Sony equipped studio.

A second UHF independent telecaster planning to serve the Hawkes Bay region on channel 55 is scheduling operation from January onwards. The firm plans to concentrate on local programming for the region, but has also installed satellite reception equipment for contract feeds from overseas.

Cry Television, Christchurch has become an affiliate of The Value Channel, the Australian shopping network delivered via satellite throughout the Pacific. The Value Channel pays broadcasters by sharing revenue from orders placed with the service from the broadcaster's coverage region. Several additional UHF operators in New Zealand are negotiating similar agreements at this time.

American AFRTS programming, carried in B-MAC scrambled format on Intelsat I174E, is showing up on a low power over the air broadcasting station in the Cook Islands as well as at a similar 'station' in the Solomon group. The AFRTS encrypted transmissions were "hacked" by Europeans more than a year ago and distribution of Scientific-Atlanta model 9700 decoders has now spread into the Pacific. The Solomon operator claims he has researched local law and under legal advice has found no local law which would prevent him from descrambling the AFRTS transmissions for local distribution. In fact, Copyright laws while universally sanctioned and ratified by governments remain a matter of local control and most of the smaller Pacific Island nation states have never updated their laws to reflect this particular area of concern.

CHECK YOUR BOOKSHELF: DO YOU HAVE A SATELLITE TV REFERENCE?

☐ YES - Send Me a copy of the 1996 "World of Satellite TV" by Mark Long.
☐ Cheque to Far North Cablevision in amount of NZ$40 enclosed
☐ Charge my VISA card ____ - ____ - ____ - ____
expiring ____________
Ship to: ______________________
Mailing address ______________________
____
______________________ or if by VISA fax order to 64-9-406-1083